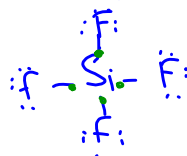
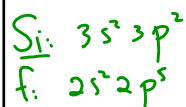


# Hybridization



$$\text{Bank e's} = 4 + 28 = 32 \text{ e's}$$



$$\begin{array}{r} 32 \\ - 8(4) = 32 \\ \hline 0 \text{ left} \end{array}$$

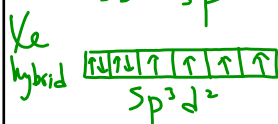
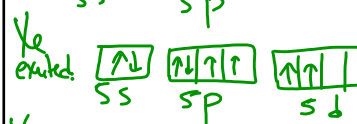
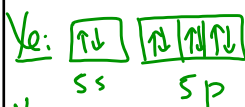
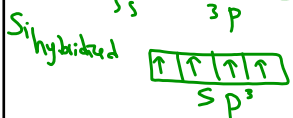
tetrahedral  
109.5°

4 bonds

∴ 4 hybrid orbitals

s + p + p + p

sp<sup>3</sup>



$$\begin{array}{r} 36 \\ - 24(8) = 32 \\ \hline 4 \end{array}$$

Molecular shape: square planar  
(< 90°)

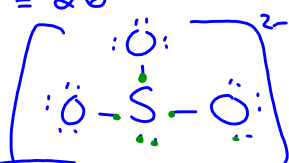
hybridization: 4 bonds  
2 lone pairs

6 hybrid orbitals

s + p + p + p + d + d  
sp<sup>3</sup>d<sup>2</sup>



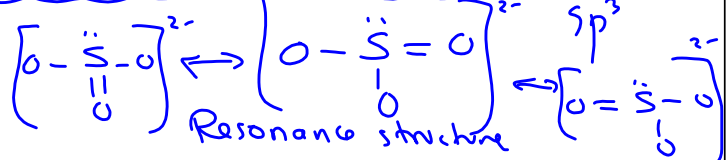
$$\text{Bank: } 6 + 18 + 2 = 26$$



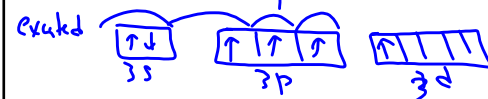
$$\begin{array}{r} - 26 \\ 18 + 6 = 24 \\ \hline 2 \end{array}$$

S has 6 valence e's ∴ one double bond is needed

trigonal pyramidal  
< 109.5°



Resonance structure



sp<sup>3</sup>